

REMARKS

Claims 1, 28, 42, 55, 67, 74, 78, 83, 85, 86, 89 and 93 have been amended. Claim 96 has been added.

Applicant believes the limitation added to claims 1, 28, 42, 55, 67, 74, 78, 83, 85, 86, 89 and 93 adds no new matter. For instance, the limitation is at least supported in the paragraph amended to the specification.

Amendments to the Specification

The paragraph added to the specification is substantially identical to a paragraph in U.S. application 09/619,848, which was incorporated by reference in the present application. The Applicant has performed the informality of changing the reference numbers in the paragraph to correspond to the figure reference numbers in the present application. The reference numbers, "108 and 110," in the paragraph from 09/619,848 have been changed to "18 and 20" in the present application. The paragraph was added because it may possibly include essential matter.

Rejections Under 35 U.S.C. § 102

Claims 1-3, 5-7, 10-12, 14, 23-27, 42-45, 47, 51, 52, 54-58, 60, 61, 63, 67-70, 72, 83, 85-88 and 93-95 are rejected under 35 U.S.C. § 102(a) as being anticipated by Pottenger, Hubbard or Lee.

Claims 16, 17, 21, 28, 29, 31-33, 35-37, 41, 64, 74-76 and 78-81 are rejected under 35 U.S.C. § 102(a) as being anticipated by Pottenger.

Claims 1-95 describe as recited in claim 1 that "during operation of the transducer a portion of the polymer is deflected, said deflection resulting in a change in surface area of the portion of the polymer, such that at a first time the portion of the polymer has a first surface area and at a second time the portion of the polymer has a second surface area and wherein the second surface area is at least about 10% greater than or is at least about 10% less than the first surface area." Pottenger, Hubbard and Lee teach the use of piezoelectric based devices using an appropriate piezoelectric material. Typically, the maximum linear/area strains for piezoelectric materials in a piezoelectric device during operation are on the order of 2-3 percent. Pottenger, Hubbard and Lee do not teach transducers using a polymer where the surface area changes during operation in the range specified

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in the pending claims 1-95. In particular, Pottenger does not teach the use of a polymer material. Therefore, for at least these reasons, Pottenger, Hubbard, or Lee can't be said to anticipate claims 1-95 and the rejection is believed overcome thereby.

Claim 96 includes the limitation "wherein the portion of the polymer has an elastic modulus below about 100 MPa." Pottenger does not teach using a polymer and does not specify the piezoelectric material type. Hubbard and Lee describe the use of piezoelectric material, such as, PVDF. Hubbard teaches the PDVF has a modulus of 2Gpa (Table 2), which is an order of magnitude greater than the modulus specified in claim 96. Lee does not specify the modulus of the material that is employed. The modulus of PVDF can be lowered by adding plasticizer. Nevertheless, Hubbard or Lee provide no motivation for softening the PVDF material. Further, as the PVDF softens, it loses its piezoelectric properties. Thus, if the devices in Hubbard or Lee were modified to use softer PDVF with a modulus of less than 100 MPa, the devices would not operate for their intended purpose because the material would not exhibit sufficient piezoelectric properties to operate properly. Therefore, Pottenger, Hubbard or Lee, alone or in combination, can't be said to anticipate or render obvious the invention as recited in claim 96.

Claims 4, 8, 9, 13, 15, 18-20, 22, 30, 34, 38-40, 46, 48-50, 53, 59, 62, 65, 66, 71, 73, 77, 82 and 84 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pottenger, Hubbard or Lee.

Pottenger, Hubbard or Lee do not teach or suggest the use of a transducer with the performance and material properties described in claims 1-95. Therefore, the Pottenger, Hubbard or Lee, alone or in combination, can't be said to render obvious the invention as recited in claims 4, 8, 9, 13, 15, 18-20, 22, 30, 34, 38-40, 46, 48-50, 53, 59, 62, 65, 66, 71, 73, 77, 82 and 84 and the rejection is believed overcome thereby.

Claims 89-92 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pottenger, Hubbard or Lee in view of Lazarus or Spangler.

The Examiner states Lazarus and Spangler teach an electroactive transducer in footwear. These teachings do not overcome the deficiencies previously described above in regards to Pottenger, Hubbard or Lee. Therefore, the Pottenger, Hubbard, Lee, Lazarus or Spangler, alone or in combination, can't be said to render obvious the invention as recited in claims 89-92 and the rejection is believed overcome thereby.

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CONCLUSION

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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